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ABSTRACT

The purpose of a project was to design and field-test a system for evaluating the adequacy of the vocational curriculum utilized by the Vocational Village, an alternative school for the training of individuals who have experienced failure in other educational settings. Focus was on the development of an evaluation model which will assess the degree of congruence between instructional curriculum and industrial needs. Use was made of representatives of business and industry as advisory committee members in each of the program clusters (industrial mechanics, marketing, food services, health occupations, office occupations, and welding/sheet metal). Four roles were assumed by committee members: (1) assist in determining level and kinds of entry-level jobs available to graduates and delineating the personal and technical skills required for these positions, (2) assist in identifying and developing the criteria for assessing student skills, (3) assist in implementing the evaluation procedures developed on the basis of the performance criteria, and (4) provide recommendations for program modification on the basis of the evaluative results. Although difficulty was initially encountered in orienting committee members and instructors, the design was formulated and pilot tested during the 1974-75 school year. Final results are yet to be seen, but initial indications of the project's impact upon the vocational curriculum are positive. Steps are being planned for follow-up and revision of the evaluation procedures. (Included are description of the Vocational Village program, project operational procedures, report of the status of the pilot testing, and preliminary conclusions.) (Author/JT)

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ED150296

Final Report

on the Design and Field Testing

of

A Systematic Procedure

for

Evaluating Vocational Programs

June 1975

Vocational Village
Portland Public Schools

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Audit and Evaluation Section
Northwest Regional Educational Laboratory
710 S.W. Second Avenue
Portland, Oregon 97204

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PREFACE

During the past year the staff of Vocational Village have been involved in the design and field test of a system for evaluating the curriculum of their respective vocational programs. The Northwest Regional Educational Laboratory was contracted during this period to provide technical assistance in planning, designing, conducting and reporting on this exploratory evaluation system.

The present document contains the plans and procedures undertaken in accomplishing this effort, and addresses the outcomes and implications for future directions which the results suggest. The report has been written on behalf of Vocational Village by a staff member of the Audit and Evaluation Section, Northwest Regional Educational Laboratory.

June 1975

Steve Nelson
Northwest Regional
Educational Laboratory

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EXECUTIVE SUMMARY

The purpose of the Project was to design and field test a system for evaluating the adequacy of the vocational curriculum utilized by the Vocational Village. The system focused upon the use of representatives of business and industry as advisory committee members in each of the six program clusters. Four distinct roles were assumed by these committee members:

1. assist in determining the level and kinds of entry-level jobs available to Vocational Village graduates and delineating the personal and technical skills required for these positions.
2. assist in identifying and developing the criteria for assessing students skills, per task one above.
3. assist in implementing the evaluation procedures developed on the basis of the performance criteria.
4. provide recommendations for program modification on the basis of the evaluative results.

Although difficulty was initially encountered in orienting the committee members and instructors, and in planning the specific procedures to be utilized, the design was formulated and pilot tested during the 1974-75 school year.

Final results of the effort are yet to be seen, but initial indications of the Project's impact upon the vocational curriculum are positive. Steps are currently being planned for followup and revision of the evaluation procedures on the basis of the current years' experiences.

For further information regarding the specific procedures utilized in planning and implementing the system, please contact the director of Vocational Village, 5040 S.E. Milwaukie Avenue, Portland, Oregon 97202.

I

Purpose of the Project

The purpose of the proposed effort has been to design and field test an evaluation system which can be used for determining the adequacy of the vocational curriculum currently provided by Vocational Village. It is felt that if such a system is to be valid, this determination must be based upon the degree to which students are provided with the skills required by current employment standards and future vocational trends within the specific occupational areas. Thus, the project focuses upon the development of an evaluation model which will assess the degree of congruence between instructional curriculum and industrial needs.

A. Description of the Programs*

Vocational Village offers personalized, career oriented education to young people ages 14 through 21 who live in the Portland (Oregon) Public School District No. 1. It serves high school dropouts, those referred by juvenile courts or other social agencies and those transferred from regular high schools because of physical, academic, mental or emotional problems. Vocational Village is the last opportunity for many young people to overcome a life pattern of chronic failure and underachievement. The program is dedicated to helping economically and educationally disadvantaged youth become independent, responsible and producative citizens through guidance, counseling and supportive programs. The program also

* Taken in part from the Vocational Village Teachers Handbook, February 1974.

offers and interdisciplinary curriculum of basic and career oriented education adjusted to individual needs, as well as placement and followup services.

Vocational Village is based on the assumption that every student is as potentially worthy as his successful counterpart in the traditional high school, and every student has the potential for success if given personalized educational opportunities. The program offers alternative channels for students which include G. E. D. proparation, entry level occupational programs and high school diploma.

Context of the Program

Much of the impetus for Vocational Village come from the Portland racial tension, due in part to riots of 1968 in other parts of the country, and the realization that many young people had become disenchanted with the traditional school setting. Because of its failure to meet the needs of the noncollege bound student, the Portland School Board commissioned a special consultant from the State Board of Education to implement a program for current and potential high school dropouts. Working with an assistand director (now director), the consulting director began to shape the program. The School Board leased a small building and began with 50 students drawn exclusively from the 6,000 who had dropped out of Portland high schools. Since then, thousands of youths have applied at Vocational Village and most have been enrolled. In addition to the existing summer program, an evening program was established in 1970 accommodating 155. In August 1972 Vocational Village moved to a larger facility for its 350 students and 29 staff.

During its first year of operation, the administrative and program structures were somewhat undeveloped. Staff members were uncertain about their teaching responsibilities and students were unclear about what was expected of them. The program tended to operate on a day-to-day basis without clear skill acquistion objectives. To help the staff determine more clearly its role in directing students toward career development, the director and staff held a series of brainstorming workshops. By 1970 the major goals of these workshops had been realized. Teacher and student handbooks developed by the staff identified the roles, rights and responsibilities of all staff and participants.

Curricular Approach

Unlike the traditional school situation where classes are held in groups on the basis of group learning objectives, Vocational Village emphasizes individualized learning. The basic mode of instruction is the Job Sheet. A Job Sheet proscribes a unit of work, a task, to be completed by the individual student. It is by design a "bitesize" amount of curriculum that the average student can complete in an hour. Written for both vocational and basic education courses, the Job Sheets are sequenced into competencies.

The choice of Job Sheets for a particular student depends on his needs, preferences, area of concentration and the number of credits needed for high school completion. The staff at Vocational Village believes a student's level of competence will noticeably improve if he can begin at a comfortable level and continue through progressively more demanding materials. As the student completes the first two or three Job Sheets in a

unit, the student and teacher confer on whether the material is sufficiently interesting and demanding. This recurring process of choosing materials and completing them continues until the student completes a competency (a unit of work). Students who merely spend time at Vocational Village accumulate no credit; credit is based on the completion of each progressive Job Sheet in a competency (unit). High school credits are earned through completion of the required competencies (units) that make up a particular course. Pretests and posttests are used to measure the student's progress.

A Learning Agreement is executed with each student specifying the goals, competencies and Job Sheets to be completed, as well as a timeline for completing the work.

Interdisciplinary Job Sheets integrate traditional academic subjects into the teaching of vocational education. The coordinators of vocational subject units meet with instructors in other disciplines to discuss the interrelationships between their curricula. For example, teachers in each vocational area meet with the English and reading teachers to identify the technical vocabulary and communications skills necessary for success in the career area. These words and skills become the basis for Job Sheets in the English courses.

As Job Sheets are put into actual use, instructors may need to make revisions. Tasks which prove too difficult may need to be split into three or four Job Sheets. Interest expressed by a student may indicate the desirability of developing additional Job Sheets on particular subtasks. Using this type of feedback, instructors revise Job Sheets and create new ones.

The Oregon Board of Education has directed school districts to restate their educational programs in the form of competencies to ensure a commonality of instruction to all students. These competencies are to be written in measurable, behavioral objective terms which state exactly what it is the student will be able to do.

Vocational Village was one of the first schools, if not the first, in the State to use behavioral objectives in the form of Job Sheets, and has a good lead on converting to a competency based curriculum because of the six years of experience in writing all curriculum in behavioral objectives.

The Vocational Village Programs adhere to the career cluster concept. The career cluster concept is aimed at the development of skills and understandings which relate to a family of occupational fields; i.e., a logical group of selected occupations which are related because of similar teachable skill or knowledge requirements.

Clusters are designed to make the majority of high school experiences relevant to the student's selected tentative career goal, development of acceptable job attitudes and encouragement and facilitation of student involvement in cooperative work experience. Thus, helping students develop the competencies required to succeed as a wage earner becomes accepted as one of the clear and primary objectives of instruction at Vocational Village, with basic education as a supportive goal.

Vocational Village has been operating seven career cluster programs since 1968. These programs are automotive mechanics, metals, office occupations, marketing, health, electricity and food services.

Curriculum Development

A major concern of the staff is to upgrade the curriculum at Vocational Village so that it will be unassailable by any critic. This work is focused on the completion of individualized interdisciplinary vocational competencies (units). The following tasks are involved in developing units:

1. Define the desired outcomes of a program by writing the course objectives for each segment or credit in the program
2. Define course requirements by identifying all of the competencies required to be vocationally competent in the program
3. Identify the content of each credit in an area by grouping these competencies into the number of credits required to complete the program.
4. Determine the interdisciplinary aspects of a program by contacting each of the team members and listing the common competencies
5. Select one competency and list all of the tasks required to demonstrate this competency
6. Identify the steps needed to complete each task by making a detailed listing of the activities required to perform that task
7. Write an Interdisciplinary Competency Unit by using the task detailing outline as a beginning for each behavioral objective statement
8. Develop a pretest to determine student's knowledge and skills prior to beginning the competency

9. Develop a posttest to determine whether the student has acquired minimum knowledge and skill upon completion of the competency

10. State the purpose of the unit by developing a rationale

B. Description of the Problem

Evaluative information is necessary as a basis for planning and implementing the foregoing curriculum development activities. However, the traditional evaluation strategies which have been employed at Vocational Village have proved to be inadequate.

Each year the school has been evaluated using criteria established by the state and local boards of education. For the most part these evaluations have taken a global approach and have utilized review panels consisting of professional educators. This approach has not been designed to provide the type and detail of information which can be used to upgrade the specific training programs. Furthermore, little information is provided for determining the program modifications required to achieve alignment with current business and industrial standards and needs.

The Vocational Village staff is not certain that the current vocational curriculum which they provide is adequate or appropriate for preparing students to meet today's employment standards and satisfy the trends for occupational placement in the future.

Thus, a need exists for evaluative information which can be provided on a timely basis for determining the relevance and adequacy of the curriculum provided by Vocational Village programs.

C. Assessment of Program Needs

It was felt that if such a problem exists at Vocational Village, then similar needs may be prevalent throughout the district, state and vo-

cational education community. Vocational Village staff explored this need with administrators in the Portland Public School District and found that other schools in the District have experienced a similar need for evaluation of their vocational programs.

A preliminary search of ERIC documents resulted in the identification of little current information on the use of criteria, procedures or instruments for conducting such an evaluation. On the contrary, "curriculum developers and educators are tempted to deemphasize evaluation because of the complex and sometimes ill-defined methodological problems present." [1] The lack of such information indicates that the problem may be widespread.

Therefore, the resolution of such information needs may have more far-reaching implications than originally anticipated. The potential generalizability of a vocational curriculum evaluation system adds further justification to the present effort.

D. Project Goals and Objectives

The proposed solution to the need for curriculum evaluation information is two-fold. First, design a system for evaluating vocational training programs and secondly, implement the system on a trial basis in each of the seven vocational programs in operation at Vocational Village. Thus, the objectives established for the current effort focus upon the implementation of activities in a manner consistant with planned management procedures. The program evaluation review technique (PERT) was utilized in formulating this management plan. The steps to be accomplished are depicted in Figure 1 in accordance with the PERT format.

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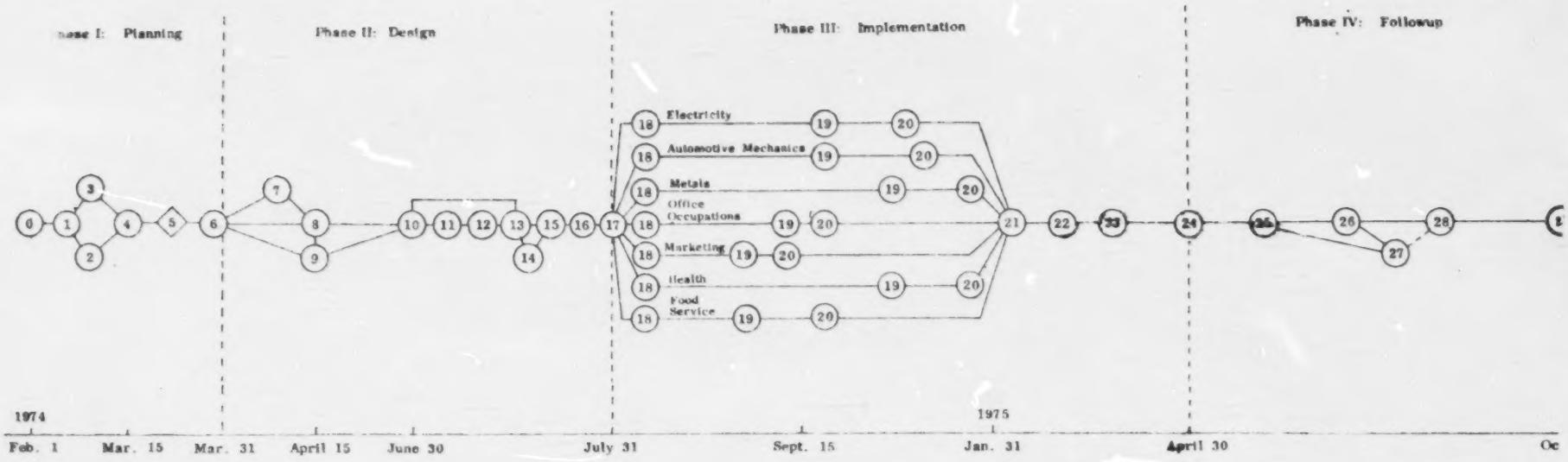
1 J. Stanley Ahmann, "Aspects of Curriculum Evaluation: A Synopsis", Perspectives of Curriculum Evaluation, No. 1. AERA Monograph Series on Curriculum Evaluation, Chigo: Rand McNally and Company, 1967, p. 89.



1. Draft Preliminary Proposal
2. Review of Proposal by Vocational Village Career Education
3. Review of Proposal by Portland School District Personnel
4. Revise Proposal Based on Results of Review
5. Approval of Proposal by Portland School District
6. Submit Proposal
7. Identify and Analyze Relevant Research Studies
8. Identify Specific Data to be Gathered to Meet Vocational Village Objectives and Needs
9. Identify and Orient Ad Hoc Specialists in Each Program Area
10. Establish Skills, Capabilities and Attitudes Needed by Graduates
11. Develop Criteria
12. Review Criteria
13. Prepare Detailed Study Design
14. Develop Criteria for Assessment Instruments
15. Complete Search for Instruments
16. Locate Existing or Develop New Instruments
17. Submit Finalized Design Document
18. Develop Procedures for Collection of Data in Each Cluster
19. Collect Data in Each Cluster
20. Compile and Analyze Data
21. Draft Report on Results
22. Review of Report by Advisory Committee
23. Review of Report by School District
24. Revise Report Based on Results of Review
25. Submit Report
26. Disseminate Study Report
27. Recommend Changes in Curriculum Based on Study Results
28. Prepare an Action Plan with Budget for Implementation of Recommended Changes
29. Begin Implementation of Action Plan

Figure 1
Management Plan

E. Program Limits and Constraints

The design and installation of the evaluation system is bounded by a number of assumptions and constraints. These conditions provide the parameters within which the system must ultimately operate. These conditions fall into three categories. First, operational conditions describe the environment within which the system will operate. Secondly, vocational training conditions focus upon the target population for which the system is to be designed; Finally, design assumptions describe the procedures to be utilized in formulating the evaluation model. These conditions are summarized below:

1. Operational Assumptions and Constraints

The system must be designed for use by and for the instructional and administrative staff of Vocational Village, thus, the sophistication of the system must be limited to the technical capabilities of these staff members. The system cannot assume the utilization of external evaluation specialists for operation of the system.

The system must be designed for operation on an ongoing basis. Therefore, the system must include both strategies for the periodic updating of the system and mechanisms for the systematic collection, provision and utilization of information for curriculum improvement.

2. Vocational Training Parameters

The Vocational Village Programs are designed for vocational preparation of entry-level skills in selected occupational areas. Furthermore, the instructional programs are designed for high school age, high school level adults.

Secondly, Vocational Village is an alternative school for the training of individuals who have experienced failure in other educational settings. To this end, the "rate of success" observed at Vocational Village has been found to be different from that of traditional high schools. Both the focus and outcome of the training is uniquely different from that of traditional high schools.

3. Design Assumptions

The processes to be utilized for designing, testing and installing the evaluation system rely heavily upon the participation and input of individuals from the world of work. Representatives from the various industries and professions are critical to the success of the Project.

The design and testing of the evaluation system will utilize the services of an external evaluation consultant. The services are to include technical consultation in planning and designing the evaluation system, as well as assistance in pilot testing the instrumentation to be utilized by the system.

The design will focus primarily upon an assessment of the needs of industry in terms of the entry-level skills required and an assessment of the skills currently provided Vocational Village students. The discrepancy identified between these two sources of information represents the extent to which curriculum modification or enrichment must be made.

F. Proposed Resolution Strategy

The evaluation system to be developed was to address five major questions. The responses to these questions would ultimately provide the desired evaluation information. The five evaluative questions are:

1. What are the current specific entry-level employment standards in the seven cluster areas?
2. What are the major trends in the various occupational areas and to what extent does Vocational Village curriculum address these standards and trends?
3. What are the general pre-employment skills required of individuals entering any occupation?
4. To what extent does the equipment and technology used in business and industry reflect a counterpart in the Vocational Village curricula?
5. To what extent do Vocational Village students demonstrate the skills provided by the Vocational Village curriculum and to what degree are these skills consistant with the standards of entry-level employment?

Thus, the five questions (or objectives) establish the ultimate goals to be accomplished by the evaluation system. Essentially, these evaluative questions portray an assessment of the congruence between three major elements of the vocational education system: (1) The training needs of business and industry, (2) The training provided by the curriculum and instructional processes utilized by the Vocational Village Programs, and (3) The training needs and demonstrated skills of the Vocational Village students. This relationship is graphically portrayed in Figure 2.

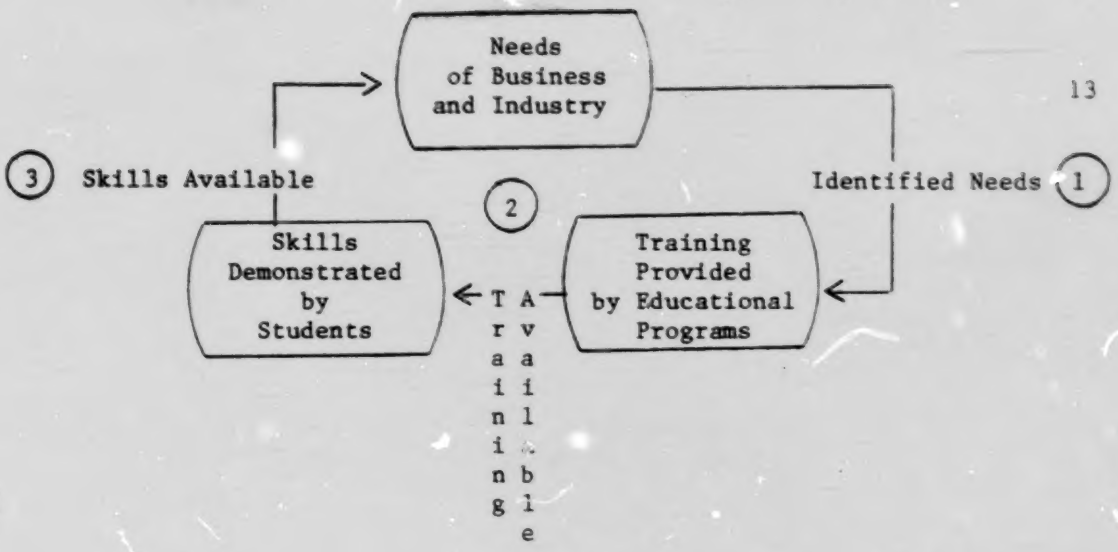


Figure 2

The Relationship of the Three Major

Elements in the Vocational Education System

It is contended that a faulty linkage between any of the three elements will cause a breakdown in the system. First, educators must be aware of the needs of the employer before a rational plan can be established for developing a training system which will respond to these needs. Traditionally, educators have tended to operate as an isolated system which was not necessarily responsive to the needs of their ultimate consumer population. Secondly, it is the responsibility of the educator to translate these needs into an effective training program which utilizes curriculum and instructional approaches best suited to the needs and abilities of the students. Finally, the symbiotic system is completed by the provision of skills on the employment "market" by the student. Hopefully, these skills are salable on the basis of congruent linkages between the three elements. The absence of one or

more of these linkages generates a condition which could be described as "educational roulette." Each element is responding to demands on the basis of incomplete information. Therefore, it was proposed that the resolution strategy emphasize the strengthening of these linkages.

In summary, the proposed resolution strategy was to design and field test an evaluation system which could function within the previously defined conditions, which would respond to the foregoing evaluative questions and which would strengthen the linkages between the major elements of the vocational education system.

G. Assessment Strategy

In implementing the design and field testing processes, an assessment strategy is called for which will assist in determining the success of the problem solving strategy. Since the proposed solution strategy involves the formulation of an evaluation system, this assessment strategy is, in effect, an "evaluation of evaluation."

The assessment of the outcome of such a developmental effort focuses upon a number of dimensions. These evaluative dimensions include the integrity of the management plan, the validity of the information provided by the system, and the transportability of the resultant model. An evaluative question (or questions) is associated with each dimension. These questions are listed on the following page, along with the criteria to be utilized in assessing the effort:

Dimension	Evaluative Question	Criteria
1. Integrity of the management plan	Did the procedures carried out adhere to the guidelines of the plan? If not, why?	Comparison of planned and implemented timelines, expended resources and procedures.
2. Validity of the output information	Does the data adequately identify specific changes needed in the vocational programs?	Review of the precision and validity of measurement, appropriate application of measurement procedures, accuracy of data reduction, and results of analysis procedure leading to curriculum decisions.
3. Transportability of the Evaluation Model	Can the system be used by other institutions and/or in other educational settings?	Reliability and clarity of processes; costs, effectiveness, and generalizability.

This third dimension is based upon a number of assumptions. The system could only be appropriately transported if:

o Criteria established for an effective program in each vocational area are appropriate for programs in the same vocational areas at other high schools.

- Knowledge, skills and capabilities assessed are appropriate for students entering the same vocations in other geographic areas.
- The same procedures, or only slightly modified procedures, are appropriate for collecting data in other institutions
- The same instruments, or only slightly modified instruments, are appropriate for collecting data in other institutions
- The analysis of data will make it possible to pinpoint inadequacies in curricula utilizing different instructional materials and methods

The criteria in each of the three dimensions will be reviewed during and at the conclusion of the design and field test effort. These reviews will be conducted by various groups, such as school district personnel in evaluation and career education, Vocational Village program instructors, and career education advisory committee members. In addition, an internal monitoring procedure is planned for providing formative information for management decision making.

II

Project Operational Procedures

The implementation of the Project was to occur in three major stages. The design stage would focus upon the formulation of the specific evaluative strategy to be developed and implemented. The field test stage would include the activities to be accomplished in implementing the system as a pilot test. The results stage would center on activities used to assess the success of the pilot effort and to begin followup on modifying program and design considerations. The procedures utilized in implementing each of these three foregoing stages are individually addressed in the sections which follow.

A. Design

The design stage was to be accomplished during the four month period beginning March 31, 1974, and ending July 31, 1974. The design stage was enacted as a result of a planning effort carried out by Vocational Village staff in conjunction with the Vocational Vallage Career Education Advisory Committee and Portland School District personnel. The two month planning activities culminated in the submission and, subsequent acceptance, of a proposed plan on March 31, 1974.

The design stage was conceptualized as involving four critical steps:

1. The establishment of valid criteria for judging the adequacy of the curriculum.

2. The identification of successful and unsuccessful elements of evaluation efforts conducted elsewhere.
3. The adaption of development of measurement instruments and data collection procedures.
4. The synthesis of the information compiled through the foregoing steps into a total evaluation design.

The activities which were carried out in response to each of these four critical steps are summarized in the paragraphs which follow.

1. Establishment of Criteria

The first guideline described by Popham for planning and conducting an educational evaluation is:

> The educational evaluator should encourage the use of instructional objectives which provide explicit descriptions of the post-instruction behavior desired of learners. [2]

Thus, the first and foremost consideration of the design effort was the identification of the performance standards or criteria upon which the evaluation is to be based. It was felt that the formulation of the evaluative criteria, as well as the ultimate design, should be based upon a clarification of the expectations and linkages between the three major elements of the vocational education system. Kaufman describes these variables as:

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2 W. James Popham, An Evaluation Guidebook, Los Angeles: The Instructional Objectives Exchange, 1972, p. 14.

1. The nature of society.
2. The nature of the learner.
3. The nature of the implementor (or educator).[3]

During the initial meetings with the Career Education Advisory Committee and the vocational staff at Vocational Village, it was decided that we would be seeking data that would answer three major questions:

a. What entry-level jobs (clusters) should we actually be preparing students for?

b. What are the necessary skills and knowledge our students must have to qualify for these jobs?

c. What training activities and performance requirements should we be using to systematically help students reach vocational competency? In other words, what must we do that makes a difference whether these students are employable or not?

It was further clarified that an individual's personal attributes would also have to be considered as an important part of his qualifictaions for entry-level employment.

Tentatively, all data regarding training facilities was to be ignored unless specifically recommended by individual ad hoc committees. It was felt by the committee that we should keep our emphasis on the above three major questions. All other factors including teacher qualification, space, class size, equipment, supplies, etc., would be regarded as facilitators. A needs assessment on these facilitating variables is a separate consider-

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3 Roger A. Kaufman, Educational System Planning, Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1972, p.50

ation and will be dealt with after it is determined to what extent the career cluster programs are or are not now meeting the employment needs of our current students.

It was also decided that because Vocational Village is a school that is training high school dropouts (those who lack basic skills as well as job skills and fall far below the ability level of most high school students), it may be necessary to select those jobs listed at the lower levels of all entry-level jobs within a cluster. This would, in turn, keep the criteria to be selected within reason when considering the students' capabilities when first entering the program. At Vocational Village, intermediate and advance levels of entry- employment training would for most students take too long. At least 75 percent of their education involves attitudinal change and remedial instruction in math and communication skills.

The primary focus of this criteria formulation step was the identification of procedures and sources of the performance criteria. The search for supportive information was conducted through two methods:

a. The ERIC system was scanned for information relating to the key description of the study.

b. Leading individuals in the field were contacted by telephone and queried regarding their knowledge of the topic or of others who may provide relevant information.

Although 17 sources of information were identified, none were found to be directly relevant to the study. Contacts with local and county intermediate education district personnel yielded no significant information. Although the individuals questioned indicated that they had been considering the idea

of establishing performance standards based upon the needs of business and industry, none of the individuals could lend particular insight to the solution of the problem.

However, two sources of information were found to be relevant to the needs of the design. First, the occupational cluster guides developed by the Oregon State Department of Education included concepts, objectives, some suggested criteria specified in terms of knowledge and skills which would qualify students for entry-level employment. Occupational Cluster Guides were available for each of the seven Vocational Village programs.

A second source of information; Planning, Implementing and Evaluating Career Preparation Programs, by Dwight Davis and Joe Borgen, from the McKnight Career Program Materials, made particular reference to the use of advisory committees in planning and conducting curriculum evaluation efforts. Specifically, the materials suggest that an advisory group be utilized which is composed of representatives from business and industry who have vocational experience in the particular career clusters in question. Such a suggestion was consistent with the original contentions of the plan. It was felt that the identification, selection and operation of Ad Hoc committees for each of the seven Vocational Village programs could be used for establishing the performance criteria to be evaluated by the proposed system. Such a committee could be used to strengthen the linkage between the training needs of business and industry and the training programs operated by the educational system; thus, improving the educational "products" available to the employer.

Since Vocational Village maintains an ongoing career education advisory committee consisting of one representative for each of the occupational cluster programs, it was felt that these representatives could assume a major role in identifying and recruiting ad hoc advisory members for their respective occupational cluster committees. The effort was to be coordinated through the active participation of the instructor of each program, as well as the assistance of the school administrator.

Five planning sessions involving vocational instructors and career education advisory members were conducted in March and early April. The purposes for these meetings were to gain the understanding, support, and leadership from the advisory committee and staff members, give school district and Northwest Regional Educational Laboratory consultants an opportunity to meet and discuss the project, discuss overall strategy and break down into individual cluster groups and plan strategy for organizing ad hoc groups.

The first session with the automotive committee consisted of getting acquainted with each other, including the school, the students, and the curriculum. The committee was given an extensive tour of the automotive shop and was given an overview by the instructor. The project was introduced to the committee and the chairman lead the group into discussion with the project director.

There was confusion among the committee members concerning their first task, establishing the skills, capabilities and attitudes needed by graduates in each program area. The group was too anxious to jump into subjective evaluation based on what they observed during the tour.

Much of the orientation that took place at the close of that meeting and at a subsequent meeting centered around their role and simplifying the presentation.

During the recruitment period, the program director had already notified the prospective ad hoc members that should they accept the assignment, they would not be overburdened. At that time, their role was perceived as being minimal but very important. They were told that they would have four distinct roles at various times throughout the regular year:

a. To assist in determining the level and kinds of entry jobs obtainable by Vocational Village graduates and what personal and technical skills are required

b. To assist in identifying and/or developing the criteria (measuring stick) for determining what will be evaluated

c. To use the evaluation procedures and instruments developed and tested by NWREL. They will receive specific instructions and participate in a major part of the evaluation process, which would be several months away for most programs.

d. To be instrumental in recommending any modifications that will enhance the program and especially those modifications that will require budgetary considerations for the next two years or more

Each career advisory member automatically became chairman of his ad hoc committee. The chairman was asked to exert his personal influence in helping recruit members who would be representative of the major jobs within his cluster. The instructor was asked to work closely with his committee chairman and the project director.

The results from each committee varied from cluster to cluster. Most of the committee chairmen and instructors were able to exert adequate leadership but required close support and periodic supervision from the project director and his assistance team. Because of the ease experienced in developing the industrial mechanics cluster ad hoc committee and anticipating difficulties in some of the other areas, it was decided that the automotive cluster should proceed ahead of the other clusters and serve as a trial example. This would also enable the project director to modify his approach when necessary, based on his experience with the trial example.

The procedures utilized in identifying and orienting the ad hoc committee members were generally parallel in each vocational program area. The five general steps in the process were:

a. Initial strategy meetings with career education advisory committee members and vocational program instructors were conducted in mid-March and mid-April 1974. The meetings focused upon an introduction of the committee members to the project and a request for names of 3-5 potential prospects for ad hoc committees. In addition, the procedures to be used in contacting potential ad hoc members were formalized. The committee chairpersons were to initiate personal contact with potential members and submit letters of appointment. Finally, timelines and tentative agendas were established by individual cluster chairpersons and the respective instructors for convening the ad hoc committees.

b. Subsequent meetings were held with the NWREL consultant, District Evaluation Specialist, advisory committee chairperson and Vocational Village administrators. A strategy was developed for the use of the ad hoc committees in assisting in the design effort. It was decided that the industrial mechanics cluster would be used as the pilot project and would progress at least one step ahead of the other clusters in the design. This would enable the Project Director to modify the procedures as difficulties were encountered.

c. The industrial mechancis cluster ad hoc committee members were selected. The senior member of the career advisory committee indicated that since he was a member of the Society of Automotive Engineers (SAE), he would request that SAE appoint a committee. A committee was subsequently appointed which includes a Portland Community College instructor, a technological high school instructor and representative of the general industry.

This selection procedure appeared to work satisfactorily. It was felt that the use of strong national or local professional organizations in the cluster area provided an effective tool for selecting specialists representing the field.

d. Ad hoc committee meetings in each of the remaining six clusters were then placed on a staggered time line to allow for an efficient utilization of faculty and administrative staff. The meetings included an introduction and tour of the school, and an explanation of the project and the committee's role in the effort.

The State Vocational Cluster Manuals developed by the Oregon Board of Education were used as the initial and major reference.

Each consisted of detailed breakdowns of tasks that are cross-referenced with many jobs within the entire vocational cluster. These tasks were refined by the Director and his staff and converted into behavioral objectives and subsequently were used as a preliminary criteria list. The committee chairman and the instructor of a cluster were then asked to critique the list making deletions and additions. The revised list of criteria was then sent to each ad hoc committee member. They were asked to critique the list and bring their responses to the next scheduled meeting.

e. Follow-up meetings with ad hoc committees were held where further clarification was needed. It was found that the ad hoc committees initially established required a good deal more attention than the later ones. This was because of the trial and error results of each step taken in the beginning and the difficulties encountered in clarifying the objectives of the project and unifying the effort between the Director and the staff, steering committee, advisory committee members, and ad hoc committee members. After this period of adjustment was over, the support from each of these groups increased and it was reflected in the ease of organizing and launching our later ad hoc groups.

The focus of this step of the endeavor was to utilize the ad hoc specialists in determining the performance criteria upon which the evaluation was to be based. Since these performance criteria were to be competency-based, e.g., the skills necessary for entry-level employment, a problem encountered was the method to be used in identifying the specific skills.

The first method considered was an inductive process in which the criteria would be generated by the ad hoc committees through a discussion of the skills which they perceive as being necessary for entry-level employment. It was felt, however, that such a process would be both difficult and time consuming, since the members would be asked to generate a list from "scratch." Furthermore, expectations regarding the level of generality and specifications for the skill definitions would be difficult to communicate and adhere to under such a divergent procedure.

A second method considered was a deductive process in which the ad hoc committee members would select and/or modify criteria from an existing list of skills. This method was assumed to be the most efficient and, therefore, was adopted.

The State of Oregon Occupational Cluster Guides appeared to be the only relevant sources for these skill lists. These guides listed both basic skills as well as requisite facilities which are required of a vocational cluster. These lists were presented to the ad hoc committee members who were then to make the following judgment. If the basic skill listed in the cluster guide was considered to be a necessary entry-level skill, then he was to rate it the number one. If the skill was considered to be at a level beyond the ability of an entry-level position, then it was to be given a rating of three. And if it was considered to be irrelevant to the entry-level skills in question, then it was to be given a rating of four.

From five to seven ad hoc committee members rated these lists of skills in each cluster. These ratings were then summarized into mean ratings. A mean rating for a particular basic skill which was at or above 3.0 was

removed from the criterion list. Next, this revised list was presented to the instructor who reviewed the selected criteria and indicated whether or not instruction was occurring which was supportive of the individual basic skills. Only those skill areas which were rated as important by the ad hoc committee members and which were also rated as "fair game" by the instructor were considered valid for the evaluation process.

Evaluative findings were already emerging at this point. For example, since skills were identified for which the instructors indicated training was not being provided, an immediate discrepancy between employer needs and educational services was apparent. This was not an evaluation of the quality of the curriculum, but rather the scope or quantity of the curriculum.

In planning for subsequent steps of the design process, which would involve the development of measurement procedures and instruments, difficulties began to arise. First, how could the multitude of specific skills be individually assessed? Secondly, how could these skills be related to the instructional content and, therefore, be translated into measure of curriculum quality? Thirdly, how could these skills be arranged into entry-level occupations as a basis for choosing which students would be assessed by the evaluation system? A review of the design procedures by representatives from NOVA University raised similar concerns.

It was felt that further structuring of the criterian lists was necessary. Such a process would be implemented along a number of dimensions. First, it was found that the criteria could be divided into general pre-employment skills and the skills required for entry-level employment in a specific occupation. Secondly, it was found that, since the Vocational Village programs curriculum

was divided into credits, competencies and units, groups of skills could be related to units of instruction. Third, subsequent design activities could be partitioned into tasks which relate to each of the five evaluative questions posed in the study plan. The analysis of the skills, curriculum and goals along these three dimensions provided a bridge between the criterion formulation stage and subsequent stages in the evaluation design process. Therefore, further criterion specification was utilized during subsequent steps of the design process.

2. Identification of Past Evaluation Efforts

A step which was undertaken concurrently with the establishment of the performance criteria was the review of successful and unsuccessful evaluation efforts which had been conducted elsewhere. The most significant finding was the absence of evaluation efforts of this kind. It appears that the historical requirement of evaluation for receiving public funds had had an adverse effect upon the educator's attitude toward evaluation. Evidently, educators have learned to tolerate or avoid, rather than promote evaluation. These problems are discussed by Stufflebeam and others.[4]

As previously noted, the information contained in the McKnight career preparation materials provided some relevant information. However, the majority of the volume consisted of examples for formatting a multitude of data collection materials.

Publications on evaluation theory provided background information for planning and structuring the design. However, these papers generally reaffirmed the steps which had been previously planned for the endeavor.

4 Daniel Stufflebeam, et.al., Educational Evaluation and Decision Making. Itosca, Illinois: F. E. Peacock Publishers, Inc. 1971, pp. 4-9.

The bibliography of the present document contains references to particularly applicable evaluation models and procedures.

Essentially, the results of the review left the Project on its own. The search revealed an absence of evaluation efforts which utilize the strategy currently proposed.

3. Development of Instruments and Procedures

In preparation for the development of the measurement instruments upon which the evaluation would be based, a plan was designed which detailed the processes leading to the generation of assessment tools. These processes were arrayed by the evaluative questions which the design was to address. These procedures are summarized on the following page.

Question	Strategy	Procedure
a) What are the current specific entry-level employment standards in the seven cluster areas?	Identification of job roles, or clusters of skills, on the basis of the previously formulated performance criteria.	1. Have ad hoc committees collect exemplory job descriptions. 2. Select entry-level descriptions. 3. Match performance criteria with entry-level job descriptions. 4. Revise criteria where needed.
b) What are the major trends in the various occupational areas and to what extent does Vocational Village curriculum address these standards and trends?	Ad hoc and instructor analysis/ review of trends in program area.	1. Develop a list of predicted trends and implications for training. 2. Develop a strategy for systematic monitoring of trends. 3. Compare trends to instruction/ curriculum and make recommendations for program modifications.
c) What are the general pre-employment skills required of individuals entering any occupation?	Comparison of skills lists <u>across</u> programs and ad hoc discussion of general employment skills.	1. Determine which performance criteria represent pre-employment skills. 2. Determine placement success of past students. 3. Determine if and/or where curriculum is provided by Vocational Village to meet pre-employment needs.

Question	Strategy	Procedure
d) To what extent does the equipment and technology used in business and industry reflect a counterpart in the Vocational Village curriculum?	Ad hoc and instructor analysis/ review of current technology in program area.	1. Develop a list of technalogical standards associated with jobs described. 2. Compare technalogical standards to instructor/curriculum and make recommendations for program modification.
e) To what extent do Vocational Village students demonstrate the skills provided by the Vocational Village curriculum and to what degree are these skills consistent with the standards of entry-level employment?	Follow up previous graduates and employers. Design field based or school based student evaluation. Comparison of curriculum units to skills associated with job descriptions.	1. Design follow-up study. 2. Design student evaluation system on basis of ad hoc. 3. Instructor and committee review and compare standards to curriculum. 4. Field test design.

The performance (skill) criteria were initially partitioned into two groups on the basis of the most probable mode of assessment. These skills could generally be divided into observed behaviors and knowledge (cognitive) skills. Accordingly, it was felt that the behavioral skills could best be assessed through a behavior rating approach, while the knowlege skills are best suited for a written objective assessment procedure.

However, when an attempt was made to design the conditions and specific assessment procedures to be used with these approaches, difficulties began to emerge. For example, under what field-based or school based setting should a student be observed in order to be assessed in a reliable and valid manner? Did opportunities exist in the field for providing work stations in which student abilities could be evaluated? If so, how long would the student need to be in the field setting before assessment should occur?

Within the cognitive area, the question was raised as to the number and kind of items needed to assess a skill or skills. Should an item pool be developed? Furthermore, which students should be considered eligible for assessment? In addition, the performance criteria which had been previously delineated lacked specific standards or "anchor points" for assessment. That is, although the behavioral skill was described, no indication was made of the quality with which the skill was to be performed in order to be considered acceptable. Two options were available for responding to these performance standards:

a) The acceptable level of skill acquisition could be specified for each performance criteria.

b) General rules could be established for providing subjective professional judgements for all or sets of performance criteria.

The first option appeared to be leading the effort in the wrong direction. It was felt that the performance criteria should be more general, rather than further concentrating "on the minutia of vocational" skills. It was decided that the second option would be most satisfactory in consideration of the number of performance criteria and the amount of work which could be expected from the ad hoc committee members. Since the plan called for the use of the ad hoc members in conducting the assessments themselves, it was felt that these individuals should be utilized in the most efficient manner possible.

4. Design Synthesis

In response to the problems encountered and the goals for the design, several consultation meetings were held between the NWREL consultant, District personnel, advisory committee members and Vocational Village staff. Firm and concise direction was needed in planning the tasks and future involvement of the ad hoc committee members. Ultimately, a sequence of tasks was developed for guiding the future activities of the various individuals involved. This plan is summarized on the following pages.

TASKS	Personnel Involved			
	Director/Coordinator	Instructors	Ad Hoc	NWREL Consultant
1. Assemble current instructional units provided in curriculum.		X		
2. Match skills identified in instructional units with performance criteria contained in job descriptions.	X	X		
3. Review and approve congruence of unit-criterion match.		X	X	
4. Revise match where necessary.		X	X	
5. Review competency tests currently maintained by program. Revise where necessary on basis of performance criteria.	X	X		X
6. Critique tests for face validity -- approve. Revise where necessary.		X	X	X
7. Develop plan and timeline for assessment.	X	X	X	X

The steps outlined in this strategy primarily focused upon the relationship between the skills the curriculum units purported to provide and the specific performance standards expressed by the ad hoc members through the formulation of job descriptions. Thus, the comparison could be made on a skill-by-skill basis. This procedure had a number of advantages:

(1) The performance criteria can be related to a specific unit or competency level of the curriculum

(2) The performance criteria can be applied to those students having completed the unit or competency level

(3) Existing curriculum mastery tests might be appropriate for such an assessment of performance

(4) Assessment strategies can be "built" into the curriculum rather than applied after the fact

(5) Both students and instructors can overtly respond to the performance criteria, e.g., the standard of performance is "public"

(6) The demands placed upon ad hoc committee members are dramatically reduced by changing the role from evaluator to validator

The generic design for the evaluation system was formulated at this point. Essentially, the design involved a process of information flow. At various points along this process, information input and output takes place. These data points represent the needs and products of the system and are served by the respective individuals involved. The information flow is diagramatically depicted in figure 2.

The role of the ad hoc committee members as validators in the data collection process includes a number of activities. First, the ad hoc committee is responsible for determining the face validity of the curriculum unit mastery tests currently used by the program instructors. Secondly, an important consideration in the student assessment process was the use of "hands on" evaluation procedures, as well as written tests. The hands on

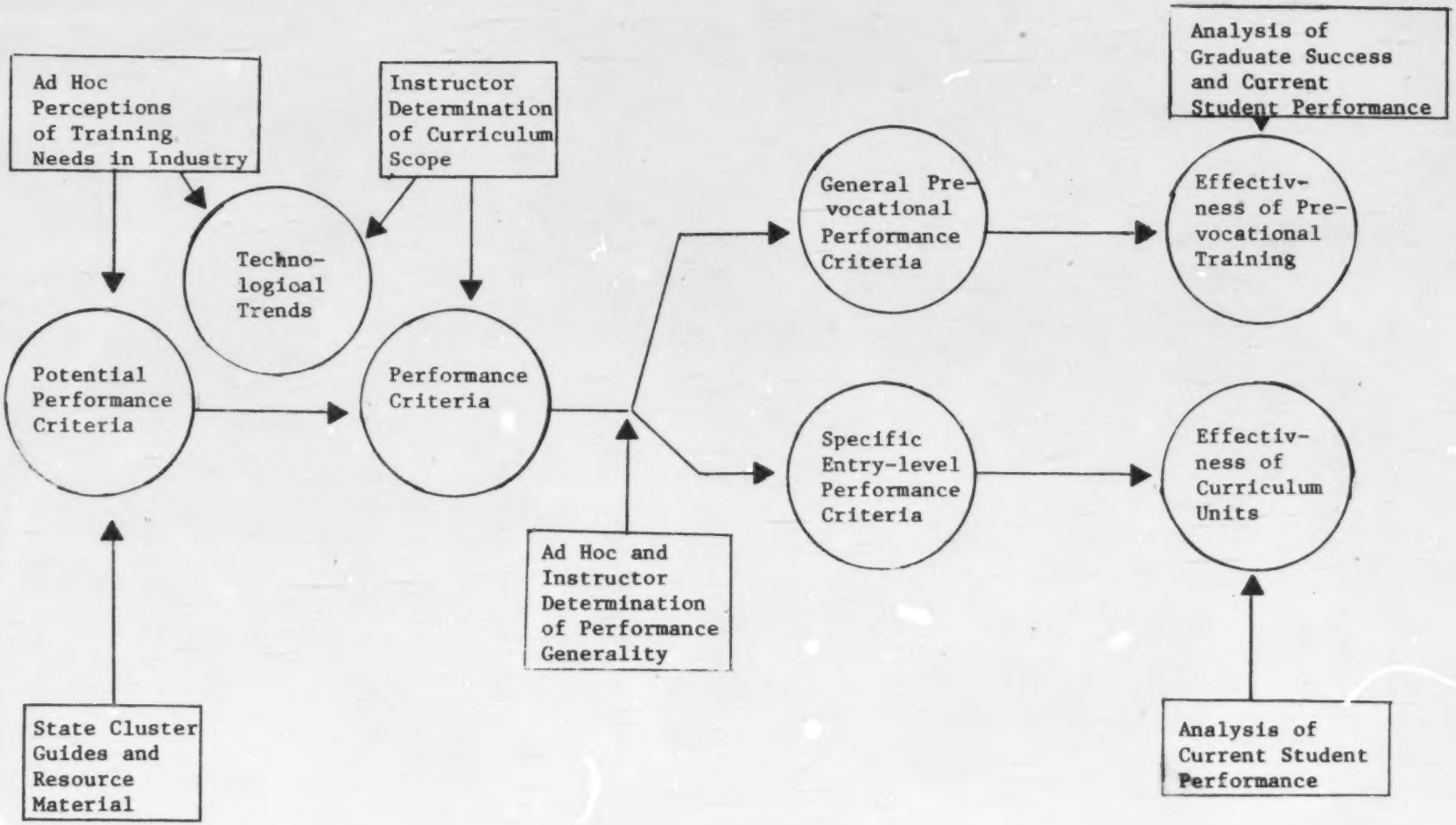
Ad Hoc Perceptions of Training Needs in Industry
Instructor Determination of Curriculum Scope
Analysis of Graduate Success and Current Student Performance
Techno-logical Trends
General Pre-vocational Performance Criteria
Effectiv-ness of Pre-vocational Training
Potential Performance Criteria
Performance Criteria
Specific Entry-level Performance Criteria
Effectiv-ness of Curriculum Units
Ad Hoc and Instructor Determination of Performance Generality
State Cluster Guides and Resource Material
Analysis of Current Student Performance

Figure 2

Information Flow

information input

information output

approach enabled the use of the ad hoc members professional expertise in observing students carry out tasks which are representative of the skills demonstrated in entry-level positions. For example, the time test of an individual's ability to operate a cash register is to allow the student to operate one, rather than administer a pencil and paper test on cash registers. Furthermore, such an assessment provides an appraisal of a major cluster of skills, rather than a single skill. Thus, the procedure is efficient as a summary evaluation process. In addition, both written and observational procedures can be used for cross-validation or "triangulation" in determining the strengths and weaknesses in the student's skills. Finally, the committee members review, conduct or proctor the administration of these tests on a sampling basis. This provides the committee members access to both the instructional facilities and students. Such an opportunity enables the committee members to informally review instructional activities, as well as conducting third-party formal assessments of the students.

The data collection portion of the evaluation design is based upon the assumption that curriculum/instructional needs can be determined through summarizing the level of skill acquisition across students. This assumption is based upon the contention that skill acquisition is dependent upon student ability and the instructional process. Student ability is essentially an intervening variable which cannot be directly controlled. However, the instructional process can be manipulated to strengthen student skills in light of the training needs of business and industry.

Since the data collection process focuses upon curriculum units, rather than the total program, and only considers those students who have completed the particular unit in question, the number of individuals to be assesed.

at any given point in time for any given competency is relatively small. The number of students in a particular assessment block would rarely exceed ten. On this basis, student sampling would not be a valid procedure. The sampling of a population of only ten subjects would not dramatically enhance the efficiency of the process, but would rapidly inflate the standard error of the estimate.[5]

The data analysis procedures focus upon description, rather than statistical inference. Essentially, the analysis would consider the magnitude of a particular skill deficiency across the students assessed. Skill deficiencies which are demonstrated by a number of students is considered to warrant quite different attention than a skill deficiency demonstrated by an individual student. Individual skill deficiencies are assumed to be attributable to individual student abilities, while group skill deficiencies are assumed to be in part a function of gaps or other flaws in the instructional process. The identification of such a common deficiency immediately directs the instructor to review and analyze that portion of the curriculum which is intended to provide mastery of the skill. On the basis of this information, the instructor is to develop a plan for revision of the curriculum unit in terms of scope and/or sequence.

Thus, the major characteristics of the evaluation system is its parsimony. The approach is direct, pragmatic and unsophisticated. These attributes are considered to be quite positive in light of the design constraints. Specifically, the system is designed to be used by and for the instructor.

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[5]Mildred Porter, Surveys, Polls, and Samples: Practical Procedures. New York: Cooper Square Publishers, Inc., 1966, pps. 291-329.

The precision with which the system can identify and diagnose curriculum needs may not be extremely exacting, but the program curriculum should experience an evolutionary development as a result of the process.

The process, once installed, is considered to be an ongoing system which is activated on a periodic basis, such as each semester. Between these review intervals, curriculum modifications can be planned and initiated. Similarly, assessment procedures can be revised as a component of the curriculum unit. More general aspects of the system, such as the analysis of trends and pre-vocational skills can be initiated on a less frequent basis; perhaps annually. However, the frequency of the evaluation cycle is based upon the needs of the instructor. The instructor and ad hoc committee members, with the assistance of the administration, are responsible for monitoring, operating and utilizing the system.

B. Pilot Test

The pilot test of the evaluation system was to be accomplished during the eight month period, beginning August 1 and ending April 30. The pilot test stage of the endeavor was enacted in two phases. First, the evaluation design was to be adapted to the specific vocational programs and, secondly, was to be implemented in these clusters on an initial trial basis. The pilot test was to be initially conducted in the industrial mechanics and marketing cluster programs, followed by the remaining programs. The design was to be finalized on the basis of pilot test results.

The adaption of the design to the individual programs required by far the greatest portion of the pilot test stage. Initially, field-based assessment strategies were proposed. For example, in the evaluation of the industrial mechanics cluster, an attempt was made to identify entry-level job stations at which student skills could be assessed by employers in the field. The logistics of such a procedure proved to be inoperable. Therefore, the evaluation focused upon written and bench-side operational assessment strategies. These alternatives were selected in the majority of the programs.

Sampling procedures were used in the initial round of the pilot test. Instrumentation, developed by the instructors or selected from commercially available tests, was reviewed by both ad hoc committee members, for face validity, and students, for clarity. On the basis of these reviews, instrumentation was revised.

Assessment procedures and instrumentation was to be developed for each curriculum unit of the vocational programs. The instructors usually began with the initial units of the programs' curriculum sequences. As a result, the first assessment could focus upon the greatest number of students and could provide

a foundation for instrument development in subsequent units.

The pilot test procedure, which was to be an initial trial of the evaluation design, was to focus upon the procedural integrity of the evaluation process and the utility of the results generated.

C. Results

At the time which this report was being prepared, the pilot testing of the evaluation design was still underway in a majority of the vocational program clusters. The status of instrument development in each of the program clusters, by curriculum units, are summarized below:

Program Clusters	Curriculum Unit	Design and Instrumentation: Initially Developed	Approved by Committee	Pilot Tested
Industrial Mechanics	Safety	yes	yes	yes
	Hard Tools	yes	yes	yes
	Precision Measurement	yes	yes	yes
	Small Engine Repair	yes	yes	yes
	Brake Safety/Repair	yes	yes	yes
	Tire Mounting and Repair	yes	yes	yes
	Tuneup	To be completed during 1975-76.		
	Power Train			
	Engine Repair			
	Suspension			
	Fuel System/Exhaust			
	Electrical			
Marketing	Checkstand procedure	yes	yes	yes
	Basic Salesmanship	yes	yes	yes
	Human Relations	yes	yes	yes
	Job Interviewing	yes	yes	yes
	Record Keeping	yes	yes	yes
	Advertising	To be completed during 1975-76.		
	Display			
	Checking, Receiving, and Marking Merchandise			
	Stock Keeping			
	Independent Project			
	Student Store Practicum			
	Cooperative Work Experience			

Program Cluster	Curriculum Unit	Assessment Procedure	Source
Industrial Mechanics	Safety	written test	Teacher made
	Hard Tools	written and performance test	Teacher made
	Precision Measurement	written and performance test	Teacher made

		Design and Instrumentation		
Program Clusters	Curriculum Unit	Initially Developed	Approved by Committee	Pilot Tested
Food Services	Sanitation	yes	yes	yes
	Kitchen Safety	yes	yes	yes
	Vegetable Preparation	yes	yes	yes
	Pantry	yes	yes	yes
	Soups and Sauces	yes	yes	yes
	Meat and Fish	yes	yes	yes
	Baking	yes	yes	yes
	Dinner Cook	yes	---	---
	Kitchen Management	yes	---	---
Health Occupations	Weights and Measure	yes	yes	next week
	Vital Signs	yes	yes	next week
	Open and Closed Beds	yes	yes	next week
	General Health Care Organization	no	---	---
	Employer Expectations	no	---	---
	Patient Care I	no	---	---
	Lifting and Moving Patients	To be completed during 1975-76.		
	Collection of Specimens			
	Intake and Output			
	Feeding Patients			
	Patient Care II			
	Preparation for Examinations			
	Pre/post Operative Care			
	Heat/cold Application			
	Patient Care in Isolation			
	Care of Terminal Patient			
	Medical Terminology			
	Clinical Practicum			
	Cooperative Work Experience			

Program Cluster	Curriculum Unit	Design and Instrumentation: Initially Developed	Approved by Committee	Pilot Tested
Office Occupations	Beginning Typing	yes	yes	yes
	Applied Typing	yes	yes	yes
	Typing Problems	yes	yes	yes
	Dictating/Duplicating Machines	to be completed during 1975-76		
	Office Practice	to be completed during 1975-76		
	Office Machines	yes	yes	yes
	Applied Office Machines	yes	yes	yes
	Filing	yes	yes	partial
	Record Keeping	yes	yes	yes
	Accounting I	yes	yes	yes
	Accounting II	yes	yes	yes
Welding/ Sheet Metal	Arc Welding Safety	yes	yes	yes
	Arc Welding Vertical	yes	yes	yes
	Arc Welding Overhead	yes	yes	---
	Arc Welding Horizontal	yes	yes	---
	Arc Welding Pipe	yes	yes	---
	Shop Safety and Metallurgy	yes	yes	yes
	Oxyacetylene Safety	yes	yes	yes
	Oxyacetylene Vertical	yes	yes	---
	Oxyacetylene Overhead	yes	yes	---
	Oxyacetylene Horizontal	yes	yes	---
	Oxyacetylene Pipe	yes	yes	---
	Cutting and Brazing	yes	yes	---

In a number of instances once the curriculum units were systematically organized, commercially available tests were found which satisfactorily "dove-tailed" with the instruction. In other cases, assessment procedures were designed by the staff and implemented by themselves or the committee

members. Finally, in still other areas, field procedures were designed by committee members to provide an appraisal of student skills in actual occupational settings.

Direct impacts from the curriculum testing have yet to be seen. It is the responsibility of the instructors to formulate curriculum improvement plans on the basis of these evaluations. The information base now exists for designing such plans.

III

CONCLUSIONS

Conclusions regarding the development, implementation and ultimate adoption of the evaluation system can be made along a number of lines. Specifically, implications regarding the effects which the system has had upon the vocational program cluster and possible modifications which would enhance the evaluation effort can be cited. The sections which follow address these specific issues.

A. Effects Upon the Program

The most significant outcome of the evaluation system can be described in terms of accountability. Representatives from business and industry have been provided an opportunity and vehicle to articulate their needs for entry-level employees. As a needs assessment strategy, such an approach enhances the relationship and responsiveness of education to the community.

Secondly, the evaluation system has required the instructors to focus their attention upon individual needs, abilities and learning styles. The curriculum and instruction must be dismantled, analyzed and synthesized. As a result, instruction is approached in a more systematic and structured manner.

Thirdly, the criteria and goals of the educational process are "made public." That is, the performance expectations can be more clearly articulated to the students.

In a parallel manner, the expectations of industry are more clearly articulated to the educator.

A number of specific examples of impact upon the vocational program clusters can be documented. The range of these impacts has been broad:

Example One: Changes in the scope of the automotive mechanics cluster were made when it was found that students were not being fully prepared for potential positions within the service station operations area. As a result of recommendations from the program's advisory committee, tire mounting and balancing equipment was purchased and competency (curriculum) units were added in tire repair, mounting and balancing.

Example Two: Changes in the direction of the health occupations cluster were made when it was found that the entry-level opportunities are quite limited for individuals having only a high school education. As a result, more emphasis was made in providing students with the skills required of a nurse's aide.

Example Three: Competency tests were developed in a number of areas of the office occupations field, where previously student evaluation had been inadequate.

Example Four: The detail of the curriculum was strengthened in the marketing cluster through the adoption of a commercially available individualized curriculum package.

It would appear that the major impacts of the evaluation activities occured through the increased interaction between representatives from the occupational fields and the educators. Combined with the expectations placed upon the instructors by the school administration to be accountable for the instruction which they provide, innovation becomes spontaneous. Such outcomes are not

generally perceived as being evaluative in the traditional sense. That is, the most dramatic changes occurred through professional judgements rather than sophisticated measurement of educational processes and outcomes.

B. Proposed Modification to the Evaluation Effort

The advisory committee members, instructors and administrative staff have discussed a number of potential improvements to the evaluation system. One point consistently emerged. All individuals participating in the process require a clear delineation of the goals and procedures to be accomplished by the system. The fact that the final model was derived through a long, sometimes confused, process was in part a result of the developmental nature of the task. As the processes began to crystalize, the tasks became much easier to accomplish. Thus, one of the responsibilities of the school administration is to clearly define the roles, responsibilities and procedures to be followed in operating the system.

A second concern, which is related to the initial issue os task clarity, is the need for open and ongoing communication with the instructional staff. Evaluation, as could be predicted, was initially viewed with fear and distrust by the instructional staff. Much of this fear may have been alleviated through a clearer articulation of the function to be performed by the evaluation system. The system has been initiated to improve educational programs, rather than to make staffing decisions.

It became apparent early in the developmental process that the addition of an administrative liaison role would enhance the implementation and

operation of the system. Such a role would serve as a link between the director of the school and the instructional staff. The function of such a liaison would include the monitoring of the evaluation system in each program cluster, and coordination and assistance to the instructional staff in following system protocal.

The use of representatives from business and industry as program advocates, external to the system, was facilitative in providing a "no threat" atmosphere for the instructors. The utility of these committee members can not be overemphasized. System credibility is dramatically enhanced by the use of these external parties.

The ultimate test of the integrity of the evaluation system, e.g., the extent to which components of the system mesh and remain intact, is to be seen. If the instructors can adopt the system and maintain it in operation without external impetus, then the "experiment" has been a total success. However, even at this point, positive impacts have been observed as previously noted.

The need for an external evaluation consultant is not clear at this point. The evaluation system has been designed to be used by and for the program instructors within the school. The system should be operational without the need for external evaluative assistance. Ownership of the system must be felt by the school if the "no threat" atmosphere is to be maintained.

C. Implications for Future Action

The school staff have initially indicated a desire to install and continue the system, not only in the occupational program clusters, but also

in basic educational areas. Although it may be premature, steps are planned for the dissemination of the evaluation system to other schools and programs which may have a need and/or interest for such an evaluation. The greatest need for future action, therefore, is the development of a "user's guide" or "operations handbook" for disseminating the system.

A question yet to be answered is what inputs will be required to maintain the system on an ongoing basis. Once the initial "sensationalism" of a new innovation has passed, the system must continue on its own merit. The continual support and guidance of the school administration is, therefore, critical.

It is hoped that the school staff organize and develop an adopter's guide which minimally addresses the following elements:

1. What is the goal and function of the evaluation system?
2. What are the specific procedural steps required for installing and operating the system?
3. What are the various roles and responsibilities required by the system.
4. What is the startup and operating cost of the system in terms of time, money and resources?
5. On the basis of past experience, what are the "do's" and "don'ts" associated with the system?

The production of such a document would enhance not only the understanding of potential adopters, but would help the school staff to solidify their perceptions of the evaluation system's processes and desired outcomes.

Since the present report represents the conclusion of NWREL involvement in the design process, a number of recommendations for further action by the school staff would be in order at this time:

1. An assessment of the evaluation strategy has not been completed. (See pages 14-16). The individuals responsible for monitoring the instructors' implementation of the evaluation system should take positive steps to complete this assessment before dissemination activities can be legitimately initiated.
2. Reporting procedures need to be established for relaying committee findings to administrative and instructional staff.
3. Reporting and interpretation procedures need to be established for translating evaluative results into curricular changes. It is at this point uncertain how instructors are responding to the results of the evaluation pilot test information.
4. Iterative timelines and management plans need to be detailed for coordinating and operating the evaluation system on an ongoing basis.

END OF REPORT